

All you need is L♥ve

by

Mary C. DiFebo

Growing up is a confusing process, and I have noticed that my mind and body react to situations in surprising ways. My nostrils flare when I am angry, my face turns red-hot when I'm embarrassed, and I feel dizzy when I am nervous about something. Our emotions can be either pleasing or discontending, and it seems as if I fluctuate amongst about one-thousand emotions in a given day. Of all of the emotions I have experienced, love is the most pleasant.

As a scientist, I tend to formulate questions about the world around me after I observe something interesting. So, naturally, I have questions about my spectrum of emotions. Is my reaction to a given "moment" equal parts physiological and emotional, or does one factor play more of a role into it? Sometimes, my body reacts to things before my emotions do. The most common example of this is when a friend will tell me, "Mary, you're blushing!" on the rare occasion when something makes me feel sheepish. What exactly are the links between my corporeal body and the emotions it contains; more precisely, what are these emotions? Discussing the eleven emotions, or moments would cover enough material to comprise an entire book, so I will delve into one of the most mysterious and enjoyable

emotions, love. Not only is love the foundation of all of the other emotions, but it speaks to the complexity of our humanity.¹

There are eleven basic emotions, or “moments”. In simple terms, emotions are steps on our journey towards an object to which we are drawn. We are naturally drawn to certain things, and this “drawn” feeling is somewhat out of our control. It has more to do with our natural, animal instinct. For instance, if I see a Rice Krispie Treat® (the world’s most delectable dessert), I do not really think twice before my stomach urges me to walk towards it. I’m drawn to the treat by an intrinsic force which recognizes that I have laid my eyes upon one of the most delicious foods ever created. This, of course, is a very simplified example of being “drawn towards” something.²

In the case of being drawn towards other people, we enter the realm of love. One of the subjects I will explore is to define what love is. To look more in-depth, what are the physical causes and effects of love? There are many physical changes which one may not even realize are occurring. As a simplified example, I will correlate vasodilatation to love. The light-headedness one may experience when “in love” is due to vasodilatation, which occurs when the vasculature (veins and arteries) of a living being expands in diameter. In other words, the circumference of the veins and arteries increases, which allows for more rapid blood flow, a drop in blood pressure, and overall light-headedness. This is just the tip of the physiological iceberg as far as the body’s reactions to love are concerned.

As humans, we are complicated and multi-faceted creatures. We have two basic sides to us. One is “knowing”, and the other is “appetitive”, or, basically, our appetite. Our appetitive side includes the aforementioned “animal instincts”. This appetite, or

¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; pp. 15-32

² See Harak, Virtuous Passions, Paulist Press; Mahwah, NJ, 1993; pp. 27-49

directionality, has two subcategories: simple, or concupiscible, and complex, or irascible. We share the simple side with animals. The simple directionality leads us toward what is good. The “moments” associated with the simple directionality are love, desire, and joy. Naturally, we desire certain things, and find ourselves drawn towards them. We naturally seek to make what we desire ours. Love fits in as the link between knowledge and desire. Desire does not necessarily come forth from knowing something. In most cases, we only love and desire one particular person; this may be someone’s spouse or significant other. We feel joy when we obtain what we desire.

Interestingly enough, hatred arises from love. For instance, I love Rice Krispie Treats[®] (which I made quite clear earlier on), but I hate when the DeSales University Center is completely out of them, and they only have other inferior desserts to offer. So, out of my love for Rice Krispie Treats[®] arises my hatred for any other substitute dessert. If someone loves something, it is logical that he or she would hate anything that is opposed to it or prevents them from obtaining it. Hatred, indeed, arises from love, but it is also completely opposed to it.

The simple appetite draws us towards the good, and it also directs us away from the bad. Hatred, aversion, and sorrow are the three emotions which oppose love, desire, and joy. Aversion is the repulsion we feel away from anything we hate. Sorrow results when we are unable to escape from that which we hate.

As a college student, it is easy to set up a metaphor for this relationship between hatred, aversion, and sorrow. On our recent Student Government trip to Washington, D.C., I had the fortune of riding in what I will call the “loud van”. Usually, I would be perfectly ready to jump into the mayhem, but on this particular Friday evening sojourn to

Washington, I could not have been more exhausted and grumpy. For about four hours, I gritted my teeth and turned up my headphones as the rambunctious Student Government officers entertained each other by screaming at each other. I am not sure why this was the, because we were all sitting about one foot apart from one another; a reasonable volume would have sufficed. By the time our van arrived in Washington, I was so incredibly mortified by what I had endured. I had been repulsed by their deafening antics, but I had no alternative but to sit in the van and endure it. I did not know that my van was the rowdier van until our trip was significantly under way. By this point, it was far too late to escape.

During the trip, our lodging was at The DeSales House, which is an Oblate residence in Washington D.C. As we parked in front of the welcoming house, I desired nothing more than to run inside, brush my teeth, and collapse into bed. I was overjoyed when I discovered that this was definitely a possibility. I love being able to sleep in a quiet environment when I am exhausted, and I hate annoying people badgering me. I experienced this opposition firsthand on that fateful Friday afternoon.

The complex, or irascible, directionality is more difficult. This is a step up from our “animal instincts”. We are drawn towards a difficult good, and driven away from a difficult evil. When we are drawn towards the difficult good, the “moments” we may experience are hope and despair. While being driven away from a difficult evil, we may feel fear and daring. Hope, despair, fear, and daring are emotions which are specific to our humanity. In other words, we do not share these with our animal relatives. They involve a bit more rationality than the previously-mentioned emotions of the simple appetite. With the

complex appetite, it is important that we do not run away from the difficulty which we face. We are likely to doubt ourselves, but we should not let these doubts get the best of us.

Our eleventh emotion is anger. When evil enters our lives, the natural response is anger. All of the emotions I have mentioned, though, resolve into joy or sorrow. These are known as “resting emotions”. Hope, despair, fear, and daring, which we labeled as the irascible emotions, arise when there is a complication. They nudge us along our sometimes difficulty journeys. It is impossible to “rest” in any of the irascible emotions. Sorrow is an unnatural state for us to remain in, and no one enjoys this emotion. If we find ourselves in sorrow, we may choose to remain in it, or we may opt to rise against it. Defeating it will cause it to resolve into joy. Anger encompasses sorrow. All eleven of the emotions are interwoven quite intricately, but each one exists as its own identifiable, primary stage.

Love is a particularly baffling emotion, and it works in mysterious ways. Love is a recognition or appreciation of another person at whom you have previously looked at in a different, non-loving way. Love is felt towards a person to whom we are directed. This is usually someone who is complementary. To snag a corny line from “Jerry Maguire” whomever we love “completes” us. The initial moment of love occurs when we initially join together as a lover with the beloved. This labels us a “lover” in a relationship.

So, we have a basic understanding of what love is. Plato referred to love as “the first creation of the gods”, and numerous philosophers have deemed it the ultimate universal law. In 1956, psychoanalyst Erich Fromm published the book *The Art of Loving*. Its purpose was to explore the philosophical, religious, and psychological aspects of love. Although the book is acclaimed for its uplifting effect on readers, it lacks scientific bases for Fromm’s claims, such as his assertion that love “is the most fundamental passion” and that it “keeps

the human race together". He also claims that failure to achieve it leads to insanity or destruction of ourselves or others.³

Many people may enjoy the mystery of something as phenomenal as love. Delving into its science may reveal facets of it that some people may prefer to leave covered. Poetry has often been considered to be the language of love, but we cannot assume that poets are able to single-handedly explain what exactly love is. Poet Byron Shelley attempted to define love in his explanation:

... love is the universal thirst for a communion not merely of the senses, but of our whole nature, intellectual, imaginative, and sensitive...The sexual impulse, which is only one, and often a small part of those claims, serves, from its obvious and external nature, as a kind of expression of the rest, a common basis, an acknowledged and visible link.

So, Shelley seems to think that romance and sex are felt manifestations of a more fundamental principle. These are concrete phenomena which point toward and participate in, but do not exhaust, the meaning behind the verb "to love".⁴

Doctor Anthony Walsh, who is the author of *The Science of Love*, defines love as "that which satisfies our need to receive and bestow affection and nurturance; to give and be given assurances of value, respect, acceptance, and appreciation."⁵

There are many different faces of love. In one respect, love is a human invention. This refers only to romantic love. Romantic love is passion, and other forms of love may be referred to as compassion. Greeks viewed romantic love as a combination of "erotike", which

³ See Walsh, *The Science of Love*; Prometheus Books, NY, 1991; p. 7

⁴ See Walsh, *The Science of Love*; Prometheus Books, NY, 1991; p. 9

⁵ See Walsh, *The Science of Love*; Prometheus Books, NY, 1991; p. 9

is sexual passion”, and “eros”, which is an ennobling feeling. The needs of oneself and his or her beloved seem to exclude everyone else’s needs. Compassion, on the other hand, combines “agape”, which is selfless concern for the well-being of others, and “philia”, which is friendship, brotherhood, and sisterhood. Both passionate and compassionate loves are rooted in our being, and our biology encourages us to move towards unity and growth by obtaining both of these types of love.⁶

Some philosophers, such as Denis de Rougemont, feel that romantic love was invented in the Middle Ages. Courtly love of this era is a variation of the ideals found in Plato’s conception of love. Courtly love was the type of love which existed between a man and a woman who were married to other people. In other words, they were extramarital involvements. Ideally, they were nonsexual relationships. It was believed to be a deeply-spiritual and ennobling love, and physical consummation of such love was considered to be destructive of the relationship.⁷

Is love a human invention that we can “disinvent”? If its origins are in the human mind, then we are led to believe this. This would imply that love is a cultural invention. To believe that love was invented during the Middle Ages would mean that touching love stories found in such writings as the Bible were nonsensical. Courtly love was a type of cultural re-creation of love, and certainly not an original creation.⁸

Some cultures continue to believe that love is merely a cultural invention. Romantic love is not nearly as readily recognized and valued among preliterate cultures as it is in ours. Native American tribes were an easy target for American anthropologists. They

⁶ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 16

⁷ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 17

⁸ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 17

recognized romantic love, but didn't consider it something worthy of writing poetry and ballads about. This is a broad statement, though. Of course, there are numerous exceptions. For instance, the Cheyenne and Great Plains Indians consider courtship and marriage to be very romantic and extensive affairs. Frankly, Cheyenne women were some of the ultimate teases, and Cheyenne braves were required to shower their desired women with gifts and compliments before she extended her hand to him. If this was ineffective, he may resort to playing her a "love flute" or enlisting the assistance of a medicine man. So, they felt and behaved in a manner similar to that of Western culture's most romantic figures.⁹

History has basically proven that permissive sexual practices undermine romantic love's joys. Tenderness, caring, and friendship, which are all accompanying characteristics of typical romantic love, may all be missing from the picture. In Eskimo cultures, it is not uncommon for men to "lend" their wives to other men. In preliterate cultures, such as that of aborigines, the primal urge to copulate and fulfill desires was usually satiated immediately.¹⁰

Even over the past 50 years, we have seen vast changes in perceptions of romantic love. In the 50s and 60s, romantic love was typically viewed as a far more innocent and wholesome practice. This is especially evident in the musical discrepancy between now and then. The rap anthems of today usually depict love as a physical urge that should be soothed whenever one sees it fit. In fact, "love" is not a word mentioned very often in many of today's more popular musical romps. However, the mention of romantic physicality is quite abundant. Today's music is much different than the innocent, tender tunes of our parents' generation. To put things into perspective, we can use an eating metaphor.

⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 18

¹⁰ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 20

Overstuffing oneself while eating will lead to obesity and discomfort, and it will eventually lead to a lack of appreciation for food in one's life.¹¹

Somehow, humans have always been somewhat aware of the importance of love to our existence. Myths are an example of an outlet we have used to express concerns about such matters. Myths are metaphorical and reflect our desire for knowledge. They organize our thoughts, sort out the fact from fiction, and funnel our feelings into a reality.

Science is comparable to mythology, because both are ways of organizing human experiences and answering questions. Religion also offers some solutions, too. We yearn for love and seek to understand it, and we have several ways of searching for the answers. Interestingly, much of what we possess in our Western culture originated in ancient Greece. The various types of love, which include: love of self, sexual and romantic love, God as love, love as desire for possession of the good, love as "the good" itself, love as the desire for inclusion have roots in Plato's Symposium.¹²

In Plato's writing, we are presented with an ancient myth about a time without the existence of love. Also, humans looked much differently than we do now. We were a spherical race with three genders: male, female, and hermaphrodite. Reproduction was asexual and, needless to say, not much fun. The beings who tried to challenge the gods received the punishment of being split lengthwise. This marked the origin of our "split personalities". This was undesirable, because each incomplete being searched for its other half. Once they successfully found their other half, they would refuse to separate again.

¹¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 22

¹² See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 24

Thus, love began. It expressed the ancient need for unity, because pursuit of the whole is at the core of what love actually is.¹³

There is definite similarity between Plato's tale and the Biblical tale of Adam and Eve. God realized that Adam should not exist alone on his newly-created earth, so he created Eve out of Adam's rib. Adam and Eve were complementary to one another.¹⁴

Numerous studies have attempted to show us how interrelated we all actually are. The coming and going of atoms from our human body occurs at a phenomenal rate. Only two percent of the atoms in our body at a given time existed in use a year prior. Our atoms are constantly exchanging themselves with others in our environment. Other studies have shown that the family trees of all of us merge into one if we travel back about thirty generations. The further in time we travel, the more likely we are to find common ancestors on both sides of our parental lineage.¹⁵

As I mentioned, Plato is one of the first thinkers whose musings on love are still of great importance today. In his Symposium myth, love is achieved during the unity of formerly-hermaphroditic spheres. The origin of homosexual love lies in this reunion of male and female organs. For Plato, sex is definitely a derivative of love. His myth depicts the yearning of one half came before Zeus' rearrangement of sex organs to make the physical act possible. However, later thinkers reversed Plato's sequence. Schopenhauer declared that, "Love is a snare set by sex to ensure the survival of the race." He, along with other thinkers, seems to think that love is not necessary for biological reproduction. However, Walsh finds this idea hard to believe. "...who would deny that sexual intercourse

¹³ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 23

¹⁴ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 23

¹⁵ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 25

accompanied by deep love is far more a spiritual communion than a simple biological imperative? The oneness felt by entwined lovers is infinitely superior to the grunting urgency of the casual hump.” Although this is definitely a humorous statement, his message can be clearly understood.¹⁶

Biologists seem to universally accept that evolutionary pressures are responsible for Zeus’ shifting of human genitalia as we made a transition to upright, bipedal creatures. Plato’s cutting of the hermaphroditic creatures is spiritually inferior and far less emotional and personal than oneness which is felt by lovers in an embrace. Although the outcomes of both physical activities are believed to be the same, the acts are undeniably different.¹⁷

The early Church accepted and emphasized Plato’s division of body and soul. However, it was also stressed that the body was a possible vessel for sin. Erotic love, when used inappropriately, was (and continues to be) quite sinful. Passionate love, in fact, constituted original sin.¹⁸

Above all, love is considered, by many, to be an ontological force. Ontology is the study of nature and relations of being. In Christianity, God is love itself. God is the apotheosis of love, something upon which we are able to concentrate our need to love, to be loved, and participate in some sort of wholeness. Love and desire, and our desire for union and inclusion, explain natural attractions. As I mentioned earlier, we are drawn to particular people and things. Konrad Lorenz, who is a Nobel Prize-winning ethologist, described love as “the most wonderful product of ten million years of evolution”. It is quite possible that there is some sort of “love energy” which drives Homo sapiens along paths

¹⁶ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 28

¹⁷ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p.28

¹⁸ See Harak, Virtuous Passions, Paulist Press; Mahwah, NJ, 1993; p. 27-49

such as cooperation and caring. It also seems fairly evident that as the dependency period of the young of a species becomes longer, the greater the necessity is for a bonding attachment to evolve. The bond between mother and infant is one of the most remarkable in the human race.¹⁹

Love cannot be explained in only philosophical and theological terms, because biology and psychology are just as essential to love's explanation. All living organisms, from amoebae to primates, carry on their life functions which are driven by electrochemical processes. Some of these processes are changeable and malleable, and others are unwavering. As human beings, we possess genes that have hard-wired much of our central nervous system. This allows us to have appropriate responses to a variety of stimuli that we may encounter. At the high end of the phylogenetic scale, we possess great freedom from fixed patterns of response that organisms at the lower end of the scale possess. For this reason, the human brain is often referred to as "plastic".²⁰

As infants, we enter the world with a tremendous amount of potentiality. What exactly becomes of us is to be determined later in our lives. We have approximately ten billion neurons, or brain cells. Basically, they are the building blocks of our nervous system. Glial cells, which are non-communicating "glue" cells, insulate and nourish the neurons. Axons are neuronal projections which transmit information from one neuron to another, and this information is transmitted by way of electrical signals, or neurotransmitters. We know of about sixty neurotransmitters, and many more probably remain undiscovered.

Peptides are among the most recently-discovered neurotransmitters, and these are about ten times longer than previously-discovered neurotransmitters like serotonin and

¹⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 32

²⁰ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p.38

norepinephrine. Peptides are proteins consisting of strings of amino acids, and they have a tremendous capacity with which they can carry information. These peptides are mostly concentrated in the limbic system, which is the emotional center of our brain. When an infant is close to his or her mother, endorphins keep the baby content.²¹

To a certain extent, an infant's neurons are undifferentiated and unorganized. Except for the connections which govern reflexes, the infant brain is not ready-wired for independent functioning. Most nonhuman mammals reach developmental stages within days that it takes human infants almost a year to develop. Love is an essential part of the human emotional-behavioral repertory because of this lag. Mammals, and humans, in particular, must be more caring creatures than most because we nourish their young. We do not possess the "lay 'em and leave 'em" philosophy of reptiles and amphibians.²²

Humans possess an adaptability and intelligence which are crucial to our identity. Our brain's cortexes are much larger in relation to our body size than in most other animals. The first half of human gestation is uterogestation or gestation in the womb. The second half, exterogestation, is the time period between birth and the infant's first crawling. The latter developmental phase is significantly more important, because the symbiotic relationship which exists between the infant and his or her mother is designed to continue until the infant's brain mass has more than doubled.²³

Love and life are almost synonymous. Anthropologist Sydney Mellen hypothesized that love, bonding, and attachment must have formed during the Plio-Pleistocene age, about fifty-thousand years ago. Our species would have become extinct by now if this were

²¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 40

²² See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 42

²³ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 43

not the case. This was hypothesized with a projected mortality rate of about sixty percent during the period. Human sexual appetite ensure that pregnancy would have continued to occur, but without long-term human attachments (where men protected and fed their women and children), the high infant mortality rate would have risen even higher. So, the human tendency is to love and to make love.²⁴

Both love and intelligence are necessary components of being human. Without love, life would consist only of the intelligent oppressing the dull. Thomas Aquinas discusses human passions by explaining that they are already ordered to reason. Our emotions are not fully governed by reason, because that would involve our total union with God. Our lives are an ongoing process of integrating passions that are already disposed towards rationality by virtue of their participation in a composite, rational being.²⁵

Thomas does not mean for us to submit our passions to control by reason, which is mental activity. Reason, in Aquinas' opinion, cannot get us to God as efficiently as our passions can. Love, not intellect, is the best way of approaching God.²⁶

In Question 27, Aquinas states: "That which is required for perfection of knowledge is not required for the perfection of love... Love is in the appetitus power, which regards a thing as it is in itself, so that for the perfection of love it suffices that a thing is loved as it is perceived in itself... and the same holds true for the love of God."²⁷

Our "plastic" brains cause us to be extremely influenced by our environment. An infant can be molded into a caring, affectionate human, or they may grow into cold-hearted, reclusive individuals. Our human instincts are not strong enough to prevail over our

²⁴ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 43

²⁵ See Harak, Virtuous Passions, Paulist Press; Mahwah, NJ, 1993; p. 91

²⁶ See Harak, Virtuous Passions, Paulist Press; Mahwah, NJ, 1993; p. 91

²⁷ Aquinas, ST, 2.27.2

experiences and environmental influences. During extero-gestation, an infant's mother is responsible for shaping her child's capacity to love and to be loved. Scientists refer to this as "neuronal wiring".²⁸

To further explain neuronal wiring, I will use a floral analogy. A circle of newly-planted rose bushes may have sparse and widely-separated roots. These roots are comparable to the spacing of axons and dendrites in our brains. After adequate nurturing over a significant period of time, the bushes' roots will have branched out to reach other bushes' roots. Over time, the roots will intertwine even further, depending on their density and the quality of environmental conditions. The root growth we would observe is very similar to that of an infant's neuronal paths. However, in the infant's brain, the touching of neuronal roots is more important than in the case of the rose roots. The neuronal touching establishes functional connections between neurons. The density and complexity of structure and interconnective speed is determined by our genetics and by our experiences, especially nurturing experiences during our infancy.²⁹

The feelings of self-worth and likeability we possess are primarily determined by the information communicated to us during our early years. One study showed that parental nurturance overshadowed all other factors when explaining varying levels of self-esteem among college students. Since love is a tremendously important emotion, it is essential that the brain's "love trails"³⁰ be well-established and heavily-traveled early in our lives. How well these paths are etched into our brains during infancy is a strong determinant in the type of people we will become. This study's results do not surprise me at all, because I have

²⁸ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 44

²⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 45

³⁰ Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 46

a very healthy self-esteem and consider myself to be a caring, nurturing individual. I have no doubt that this is due to the loving environment in which I grew. Although our “plastic” brains remain somewhat flexible during the courses of our lives, I know that my parents’ influence on my personality has been tremendous.

Nourishment and stimulation are integral variables in human development. Neuropsychologists have conducted extensive studies to determine how important these factors are. Neuropsychologist R. Lewin studied groups of young children whom he classified into several groups:

1. malnourished children from stimuli-enriched environments
2. malnourished children from stimuli-deprived environments
3. well-nourished children from stimuli-enriched environments
4. well-nourished children from stimuli-deprived environments

Tests were administered to each of the children to determine intellectual development. As one would probably presume, malnourishment and stimulation-deprivation both had negative effects on their intellectual development. Well-nourished children growing up in stimuli-rich environments scored the highest and malnourished children from stimuli-deprived environments achieved the lowest scores.³¹

Nourishment and stimulation are essential to the brain’s development. Although they are also important in our adult lives, they are more important to youngsters. Malnourishment may cause infants to become lethargic and apathetic, which may result in reduced interest on the caregiver’s part. So, the caregiver may present the child with much less vital stimuli than he or she should be receiving³².

³¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 48

³² See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 48

Malnourishment's effects on adults are much less drastic than on infants. In adults, nourishment would be taken from other bodily organs, but a diet lacking in protein may have harsh effects on an infant. Protein is needed for the myelination of neuronal pathways. Myelin is a fatty, beautiful white substance which coats axons. It is like rubber insulation around electrical wires because it prevents nerve impulses from "short-circuiting". Less than adequate myelination severely impedes their efficiency. Infant brains are short in their supply of myelin at birth, so an infant's diet is mostly responsible for laying down the myelin during the first two years of life.³³

Breastfeeding is the best way to ensure an infant's adequate nutrition. God provides us with everything we need for our lives, and breast milk is an excellent example of such. Breast milk is extremely nutritional, and it contains a myriad of nutrients, including cystine. This amino acid is particularly essential to a brain's physiological development. Besides the obvious nutritional benefits of breast milk, it increases the amount of time an infant and his or her mother spend together. Lower-class mothers are the least likely to breastfeed their infants, which may be directly correlated to the higher incidence of child abuse and neglect in the lower-class demographic.³⁴

The stimuli that show an infant that he or she is loved include affectionate touching, kissing, and cuddling. These acts are neurophysiologically critical during the early developmental stages of the brain. Anna Freud, daughter of Sigmund, attempted to explain the importance of tactile stimulation in the following:

In the beginning, being stroked, cuddled, and soothed by touch
libidinizes the various parts of the child's body, helps to build up a

³³ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 48

³⁴ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 49

healthy body image and body ego, increases its cathexis with narcissistic libido, and simultaneously promotes the development of the object love by cementing the bond between child and mother. There is no doubt that, at this period, the surface of the skin in its role as erotogenic zone fulfills a multiple function in the child's growth.³⁵

Skin and brain are extensively linked. Nerve fibers connecting skin to the central nervous system are better developed than the fibers of any other organ. Even minimal stimulus deprivation during stages of active cell growth reduces neural metabolism, dendritic growth, and atrophy of glial cells. Stimuli also seem to influence the rate of myelination. The more nerve fibers of the brain that are being used, the more rapidly the fibers become myelinated.³⁶

The cerebellum, sometimes referred to as the "little brain", also appears to be involved in developing the human ability to love. The cerebellum controls our sense of balance and the coordination of our muscle movement. The cerebellum is believed to be closely connected with our limbic system, which I previously explained to be our emotional center. Movement, massaging, rocking, and cuddling are all examples of somatosensory (body sense) movement. Somatosensory deprivation leads to inadequate wiring of pathways between the cerebellum and our limbic system. This may later lead to an inability to experience love and pleasure. In the scientific world, "somatosensory stimuli" is a technical name for what we may refer to as "tender loving care".³⁷

If an infant is raised in a positive and loving environment, he or she will have pathways to the brain's pleasure center which will be well-established. On the contrary,

³⁵ See Freud, Normality and Pathology in Childhood; International Universities Press, NY; 1965; p. 199

³⁶ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 50

³⁷ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 51

cold, abusive infancies will have neural circuitry wired towards one's displeasure centers. Their self-esteem and confidence will be lower than that of a well-nourished, happy baby. Joseph Conrad sums up the effects of love and nourishment on children in the following: "Woe to the man who has not learned while young to hope, to love, to put his trust in life."³⁸

I thoroughly explained the utmost importance love has in a child's life. It is important to note that my claim that love is the "best" emotion and speaks to our human complexity reaches much deeper than googly-eyed romantic love. Clearly, familial love is also an essential determinant when analyzing who, exactly, we become as we grow up.

The human brain is often referred to as "triune". The brain has three distinct anatomical parts. These seem to reflect the evolutionary history of our species. These three areas are thought to be independently-functioning, but they are closely integrated and engage in lively exchanges with one another. The three systems are reptilian, limbic, and neomammalian. These three areas were named by Paul MacLean, who is chief of the Laboratory of Brain Evolution and Behavior at the National Institute of Mental Health.³⁹

The functions which these three areas control are quite similar to the functions controlled by Freud's id, superego, and ego: respectively, they control biological drives, emotions, and rationality. The reptilian portion governs the basic plots and actions in our lives, the limbic portion adds the emotion to our plots and actions, and the neomammalian brain guides and combines these plots in different ways for every person.⁴⁰

The reptilian brain is found in all vertebrates. Its name, the "reptilian brain", emphasizes how primitive and archaic it really is. This portion includes the brain stem,

³⁸ See Valiant, Adaptation in Life; Little, Brown; Boston, 1977; p. 284

³⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 77

⁴⁰ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 78

which is composed of the spinal cord, the medulla oblongata, the pons, and the midbrain. These brain parts control our basic functions, like respiration and heartbeat. The structures in the reptilian system are hard-wired and cannot be eliminated. One of the reflexive behaviors which this system controls is our smile. Infants' smiles are reflexive and indiscriminate. It may be the case that infant reflexive smiles may exist to evoke care giving behavior from parents. Love and attention reinforce the smiling behavior. Although the reptilian system is relatively unaffected by life experience, loving care is vital to an infant's transition from reflexive to learned behavior.⁴¹

The limbic system surrounds our reptilian system. It is a sort of balancing system between its lower and higher cranial neighbors, the reptilian and neocortex systems. The limbic system adds emotions to our reptilian systems, and it is where we experience sensation and emotion. Our limbic systems are able to function in the absence of the neocortex, or "thinking brain". Scientists have impeded the development of the neocortex in certain animals and observed a continuation in breeding, nesting, and nurturing. However, if limbic development is prevented, an inability to enjoy pleasure and playing was observed. The limbic system has two distinct regions: the amygdala and the septum pellucidum. The amygdala is responsible for violence and aggression, and the septum pellucidum is the brain's pleasure center. The two components have an either/or relationship, because one of the two is always dominant. Stimulation of the pleasure center will calm an irate animal, and stimulation of the violence center will produce instant rage.⁴²

The amygdala may naturally be more dominant than the septum pellucidum. Aggression seems to be dominant when neither love nor aggression has been modeled.

⁴¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 80

⁴² See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 82

Aggression is an unlearned trait which seems to result from our evolution as a sort of baggage. The pleasure center, which includes love, is much more experience-driven. Sigmund Freud hypothesized that the origin of love lay in tactile sensations babies receive from their mothers. An infant's love of certain stimuli is what scientists refer to as an "unconditioned response". The limbic system is not single-handedly responsible for human love relationships. Nonhuman primates are unable to integrate biological bonds to form kinship bonds. The integration of these two bonds is facilitated by the third portion of our brains, the neomammalian system.⁴³

The neomammalian brain, also called the neocortex or cerebral cortex, is the third portion of MacLean's triune brain. Its functions are what define us as human beings. All mammals have a natural instinct to protect their young from harm, but only humans know which outside influences will harm their children. Existing maternal instinct is enhanced by the knowledge and insight provided by our neocortex. At the level of the neocortex, there appears to be a greater potential for love in women.⁴⁴

Nobel Prize-winning psychobiologist Roger Sperry discovered that our two separate cerebral hemispheres are connected by a band of fibers called the corpus callosum. The brain's left side is equipped with logic and linear skills, and enables us to perform mathematics and learn languages, among many other things. The right side of our brain specializes in visual-spatial arrangement and the processing of emotions. I feel as if my two cerebral hemispheres vie for space in my skull. On one hand, I am a scientist who spends hours in the Priscilla Payne Hurd Science Center, analyzing plant tissue for the presence of metals and dissolving dirt in nitric acid. On the other hand, I enjoy my literature classes

⁴³ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 86

⁴⁴ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 87

more than almost any others. I also enjoy taking slow strolls through Allentown's very underappreciated Art Museum. Studying the portions of the brain and what functions and emotions they control is of particular interest to me because of the war being fought in my own head. Then I think about it and realize that this is not a hostile battle of any kind. Rather, my left and right brains can coexist. I think their coexistence makes me a very well-rounded individual.⁴⁵

Consequently, it has been discovered that the female brain is less lateralized than the male brain. In history, man has been the hunter. This necessitated selection of motor and visual-spatial skills, and male superiority with these skills is still observed today. Females have had more diverse roles in evolutionary history because they had to perform miscellaneous tasks in ancient hunter-gatherer communities. The evolutionary pressures women were subjected to were more diverse than those to which men were subjected. Skills considered to be superior in women include nurturer, caregiver, comforter, and peacekeeper. In evolutionary history, this pressured women to select social skills such as language and emotional sensitivity.⁴⁶

The lesser degree of brain lateralization in women has several notable advantages. For example, female stroke victims regain more of their functioning than men because of the easy transfer of brain processes from damaged to healthy brain hemispheres. Also, the greater degrees of plasticity that female brains possess make us less susceptible to developmental disorders associated with hemisphere dysfunction. These include: autism, dyslexia, psychopathy, aphasia, and early-onset schizophrenia.⁴⁷

⁴⁵ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 88

⁴⁶ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 89

⁴⁷ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 90

In terms of love, we can see that evolution has provided us with more complex brain mechanisms over time. Our ancestors' reptilian systems ensured that they would feed, fight, flee, and reproduce. The limbic system developed as love and nurturing became essential for species survival; the limbic system developed to facilitate these processes. When we needed to become civilized creatures, the neocortex evolved. The neocortex is what enables us to combine our raw limbic emotions with reason.⁴⁸

If we are unlucky enough to be deprived of love in our early lives, are we able to compensate for it later in life? Our ability to form loving relationships during the course of our lives does largely depend on early loving experiences, but a lack of this experience does not necessarily doom us to be loveless and unhappy for the rest of our lives. Our intrinsic neuroendocrinal forces drive us to develop affectionate behavior during our lives. Evolution has wired us with a need to give and receive love.⁴⁹

Saint Augustine felt that love was the one true human emotion. Sigmund Freud felt that love's rejection is hate, its thwarting is aggression, and its protracted absence is pathology, illness, death, and destruction. This shows that scientists and men of God consider love to be of the utmost importance. Love deprivation is not necessarily the cause of any one thing. It is, however, a variable that determines the relationship between a syndrome and its cause. It is not very far-fetched to suggest that disease may result from an unpleasant relationship between humans. The World Health Organization defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".⁵⁰

⁴⁸ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 91

⁴⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 92

⁵⁰ Terris, "Approaches to the Epidemiology of Health", American Journal of Public Health; 65 (1973); p. 1037

Stress, the type of people we are, our interpretation of the world, and our interactions with others has definite consequences on our health. For example, my freshman year of college was particularly stressful. I had a very difficult time adjusting to the new stresses of college life, and I suffered severe tonsillitis during my spring finals week. The presence of my friends definitely seemed to alleviate my illness while I was at school, but my excessive stresses wore me down and I was admitted to the hospital. Stress is widely-known to suppress immune system function to a certain extent. Freud summed up his take on health and love in the following: “A strong ego is protection against disease, but in the last resort we must begin to love in order that we may not fall ill, and we must fall ill if, in consequence of frustration, we cannot love.”⁵¹

A British scientist once said, “Love is biochemistry’s chief assistant.”⁵² I have already demonstrated that love, or a lack thereof, has adverse effects on physical and intellectual growth and development. However, there are specific examples of concrete instances in which a lack of love and nurturing led to disease or illness. Psychosocial or deprivation dwarfism occurs when children are severely retarded in their physical growth. Dwarfism has been known to occur in loving families, which demonstrates that it may sometimes have a purely physiological cause that is entirely independent of psychosocial causes.⁵³

A biochemical malfunctioning is usually an underlying cause of illness, but studies have been conducted to distinguish organically- and emotionally-caused illnesses. Hypopituitary dwarfism differs from psychosocial dwarfism in that its cause is an

⁵¹ See Freud, “On Narcissism”, Collected Papers of Sigmund Freud, vol. 4; International Psychoanalytic Press, 1924; p. 42

⁵² See Young, The Rise of the Meritocracy; Penguin Press; Middlesex, England, 1975; p. 30

⁵³ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 101

insufficiently-active pituitary gland. Determining which type of dwarfism a child may suffer from can be easily done with closer studying. Does a child display odd behavior, such as being socially-withdrawn or being particularly accident-prone? Does he or she have particularly odd eating habits?⁵⁴

A closer look is then taken at the child's mother. Does she display signs of anxiety, depression, or social or marital instability? Alcoholism and the absence of a father figure are also commonly-observed characteristics of houses with psychosocial dwarves. The final examination is of the child's endocrine function. If abnormal endocrine function returns to normal upon removal of the child from his or her home, there are obvious effects of the child's abnormal home life. Psychosocial dwarves usually display rapid physical and emotional growth rates when removed from their homes.⁵⁵

The endocrinal mechanisms in psychosocial dwarves are attributed to love deprivation. Some researchers suggest that living in an emotionally-bereft environment leads to abnormal sleep patterns. Somatotrophin is a growth hormone which is released primarily during the early hours of sleep. For its release, normal sleep patterns are required. Outward displays of love, such as tactile stimulation and cuddling, lead to muscle relaxation and a feeling of security. The brain's endorphins are responsible for these peaceful feelings. Muscle relaxation and warm, fuzzy feelings are needed for healthy sleep. In childhood, insufficient sleep or irregular sleeping patterns may lead to insufficient circulation of growth hormones.⁵⁶

The path to psychosocial dwarfism is as follows: a child thinks he or she is not loved.

⁵⁴ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 101

⁵⁵ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 102

⁵⁶ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 103

The perception is relayed to the hypothalamus, where the deprivation is sensed emotionally. This leads to abnormal sleep habits, which upsets the cortisone/endorphin balance of hormones. Because of the imbalance, hypothalamic releasing factors are inhibited when sleep occurs. Although the exact extent of how much a child's environment affects his or her health is not known, it is obvious that a person's relationships will affect health in some way.

Heart disease is the number-one killer of adults in the United States. Hypertension, or high blood pressure, is a cause of many illnesses, such as renal failure and strokes. At some point in our lives, we have heard of "broken hearts". This is not a very far-fetched notion, however. Our heart's health not only depends on such factors as genetics, diet, and exercise, but also on social and emotional health. A study conducted at the University of Toledo found that love deprivation was definitely linked to blood pressure. The greater the love deprivation an individual suffers, the higher his or her blood pressure.⁵⁷

Emotions such as anger, sadness, and embarrassment result in the hypothalamus communicating with the autonomic nervous system. The adrenal glands then secrete hormones epinephrine and norepinephrine. These are our "fight or flight" hormones, which prepare us for confrontation or fleeing. If we choose to "sit and seethe", enzymes will not restore hormonal balance. As a result, unconsumed fatty lipids may accumulate in the blood stream and cause an elevation in blood pressure.

The link between love deprivation and hypertension is more evident in older subjects. The accumulation of fatty lipids in our vasculature takes time; so, naturally, older patients would display more hypertension than the younger subjects. The noteworthy

⁵⁷ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 104

relationship between love deprivation and hypertension was independent of age and weight. In other words, after age and obesity had been accounted for, love deprivation took significant tolls on their systems.⁵⁸

Chemical foreign substances may invade our bodies at many different sites, which is why the immune system is evenly-distributed throughout our bodies. Lymphocytes are the masterminds of the immune system. Granulocytes are the “killer cells” of the immune system. Receptors have been discovered on the surface of lymphocytes, and these receptors are for various chemical messengers, including sex hormones, endorphins, and catecholamines. This further supports the link between mind and body; it suggests that since there are receptors for neuroendocrines, neurotransmitters, and neuropeptides on lymphocytes, these brain chemicals influence their activity depending on where they need to go and what they need to do.⁵⁹

The links between love and mental illness are more easily grasped than the link between somatic illness and love’s presence (or absence) in our lives. Depression, suicide, alcoholism, drug abuse, and various neuroses are just a few examples of mental illnesses which are proven to be warded off, to some extent, by love. The ongoing “nature versus nurture” debate of the psychology realm tries to determine whether mental illnesses are genetically-determined, or if they are products of one’s upbringing and environment. The answer, as of now, is that both nature and nurture are responsible for one’s mental illnesses.⁶⁰

⁵⁸ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 105

⁵⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p.109

⁶⁰ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 117

When many people hear “love”, they automatically think of romantic love. This is, after all, an ever-present force in pop culture. Many people thought that the demise of Jen and Brad (or Nick and Jessica) was a sign of the apocalypse. To get one thing straight, women graced the earth with their presence before men came grunting into our world. Each human is a product of a woman’s egg and a man’s sperm. The egg carries the female X chromosome, and spermatozoa may be either male (with the Y chromosome) or female (again, with X). The egg is approximately 85,000 times larger than the single sperm that will penetrate and fertilize it. The chromosome that the sperm carries determines whether the zygote will develop into a male or female. Two X chromosomes result in a female, and a Y chromosome sperm produces a male with an XY genotype.⁶¹

Why do humans reproduce sexually? Many organisms find asexual reproduction to be sufficient. However, if humans reproduced asexually, there would be no biological improvement. Each new human would be an exact replica of the one from which it came. In sexually-reproducing species, we do not often see emotional attachment. Dogs and cats get the job done in minutes, with absolutely no emotional attachment to the partner. This is because most mammals are far more independent and individualistic than humans. Their survival instincts make them fairly complete in themselves.⁶²

Over time, evolution has led to a link between sexual reproduction and love. In short, this occurred due to our intelligence. Anthropological evidence supports a close bond between the evolution of intelligence and the evolution of love.⁶³

⁶¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 180

⁶² See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 184

⁶³ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 185

Being in love has both rational and emotional components. As I mentioned already, we are thinking, intelligent beings. Falling in love, however, is one moment in time. It differs from being in love, which is an ongoing process. Also, I already talked about being “drawn” to particular people and things. Different things rev different people’s engines. Inexplicable things may attract some people; for instance, I find beer guts attractive. Why this is the case, I have absolutely no idea. When I see Vince Neil, lead vocalist of Motley Crüe, or Jason Varitek of the Boston Red Sox, their extra belly fat is almost as delightful as a Rice Krispie Treat[®]. Russian writer Ivan Turgenev explains first love in the following:

First love is exactly like a revolution: the regular and
 established order of life is in an instant smashed to fragments;
 youth stands at the barricade, its bright banner raised high in
 the air, and sends its ecstatic greetings to the future, whatever
 it may hold: death or a new life, no matter.⁶⁴

When we see the one whom we love, all of our senses send messages to the limbic system. A flood is sent to the hypothalamus, which synthesizes hormones. When the hypothalamus is excited, it releases a peptide called adrenocorticotrophin, which causes the hormone ACTH to be released from the pituitary. ACTH flows through our bloodstream to adrenal gland receptors, which then release corticosterone. This increases the metabolism of glucose, which results in the feeling of love and excitement. Flushed skin, sweating, and heavy breathing are all immediate side-effects. It is interesting to note that this chain of events is identical to the stress response.⁶⁵

⁶⁴ Turgenev, *Spring Torrents*; Penguin Press, NY, 1980; p. 100

⁶⁵ See Walsh, *The Science of Love*; Prometheus Books, NY, 1991; p. 187

Romantic love very well may be the strongest of our positive emotions. When it strikes us, we are moved into an altered state. If this love is returned, we seem to be floating on a cloud; everything seems brighter and happier. It seems as if everyone becomes a poet when he or she is in love. Everyday sights seem to become more beautiful, and every other sense is heightened. Stimulants like cocaine and amphetamines have the same effects as love. Love is a much healthier high, however. This “high” is due to the dramatic increase in limbic system activity and increased neurotransmitter activity. Another similar phenomenon which I experience on an almost-daily basis is a “runner’s high”. This is the euphoric feeling one often experiences after an intense workout. This also mimics love.⁶⁶

The experience of romantic love is thought to be chemically mediated by an amphetamine-like substance called phenylethylamine, or PEA. It has had amphetamine-like effects on laboratory animals, and decreased levels of PEA are associated with depression in humans.⁶⁷

Many scientists also think that we are “wired” to sense when we are near members of the opposite sex who we consider to be receptive to us. A continuing male presence is not as essential as it once was. Systems such as welfare have been set up to compensate for a missing father figure in a household. Also, as drug addicts may develop a tolerance for his or her drug of choice, we may develop a tolerance for the one we love. Seeing or being near our loved one may fail to produce the same “high” it used to. This is why long-term bonds cannot be based solely on physical attraction. These attractions will undoubtedly wax or

⁶⁶ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 187

⁶⁷ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 188

wane, but actually liking the other person with maturity will enable the love to continue on.⁶⁸

“True” love is possible when attraction works in conjunction with attachment, and infatuation is attraction without attachment. Attraction is like an intense lightning bolt, while attachment entails warmth, comfort, and security. Attachment is thought to involve narcotic-like substances, endorphins. Endorphins produce a general feeling of well-being when people are in secure and comfortable situations. People who do not form lasting attachments will rapidly migrate from one infatuation to another.⁶⁹

There are trends in our society: older men prefer younger women, and younger women prefer older men. This seems to work out quite nicely! However, young men who are searching for attractive females and older women may be left out due to these preferences. Older men are unknowingly drawn to younger women because of their reproductive fitness. Although having a younger wife may make an older gentleman seem more attractive, powerful, and confident, the underlying reason for the attraction does lie on the biological level. Younger women are more likely to birth the most robust, healthy babies. However, a youthful male does not have similar reproductive advantages. Their ability to produce robust offspring is not as contingent upon age as in the female gender.⁷⁰

Women are more attracted to security than to a youthful physique. A high social standing, financial security, intelligence, and maturity are more appealing to many women than a chiseled body and a pretty face. Finding a man with these characteristics ensures that a woman will have a safe haven in which to raise her family. A male who fills the role

⁶⁸ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 190

⁶⁹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 193

⁷⁰ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 208

of father, protector, and provider is what women search for in a mate. Just like a man's preference for young women capable of bearing healthy babies, a woman is not very conscious of these underlying biological factors which draw her to her mate.⁷¹

From a Catholic perspective, God is responsible for everything. He controls our universe and oversees everything we do. Thomas Aquinas believed that God is Love. In God, there is love, generosity, and caring. The purpose of all creatures is to share in the Love that is God, and God has instilled his love in every inch of his creation. God creates for love, so that we can be loved and love. God is Love, and God is trinity. There are three distinct, yet unified, parts to God. Each third of the trinity is in complete communion with the other two. This is the blueprint for human love: distinctness and communion. God created each person to be an individual and each has a capacity to love and be loved. We each have a need for individuality and relatedness. What define a person are the relationships he or she is in. We are "constitutively interrelational". We increase in perfection, distinctiveness and relatedness, as we return closer to God.⁷²

According to Aquinas, each of us is called, or drawn, to our ultimate other. I talked about our inexplicable draw towards certain people and things. Movement towards the greater love, God, involves avoiding the things and people which would draw us away from Him. Each of us has an appetite, and this is what draws us toward certain people and things. There are three categories of appetite: natural, sensitive, and rational.⁷³

The natural appetite is also referred to as "physical". This encompasses the laws of nature and other things which govern inanimate objects. A dropped rock has an appetite

⁷¹ See Walsh, The Science of Love; Prometheus Books, NY, 1991; p. 209

⁷² See Harak, Virtuous Passions, Paulist Press; Mahwah, NJ, 1993; pp. 56-59

⁷³ See Harak, Virtuous Passions, Paulist Press; Mahwah, NJ, 1993; p. 61

against the air and towards the earth. The sensitive appetite pertains to animals with sense-perception. Aquinas' view of animals was of a fused spirit and body: he did not simply believe in bodies which had spirits added to them. The sensitive appetite possesses a combination of spiritual reality and freedom. To Aquinas, spirit, sense-perception, and choice are bound together.⁷⁴

The rational appetite is the third and highest appetite. This is from his work *Treatise on the Angels*. Aquinas applies the characteristics of appetite (freedom, movement, participation in divine reason) to spirit-beings, or angels. Angels have no bodies and are purely spirits; they are the closest beings to God. In humans, our intellect is combined with a physical body. We are “moved movers”, but we are not governed completely by our senses, as animals are. The final goal which our rational appetite perceives is union with God.⁷⁵

In Aquinas' *Treatise on the Passions*, he strives to show us how important the passions are for his theology. Thomas speaks, in particular, about the morality of the passions. In his first question about the passions, Aquinas wonders “whether or not there can be a passion in the soul”. He assures us that passions are crucial in the moral life. It is in our nature to always be moved by some other. Also, one cannot have passions without some sort of bodily change. In the case of love, I have thoroughly explained a myriad of physical effects love may produce in someone. To Aquinas, to be “in a passion” means to have bodily changes of some sort. These changes may be blushing, clenching our teeth, a rise in heart rate, etc.⁷⁶

In question 26, Aquinas classifies love as “something pertaining to the appetite”.⁷⁷

⁷⁴ See Harak, *Virtuous Passions*, Paulist Press; Mahwah, NJ, 1993; p. 63

⁷⁵ See Harak, *Virtuous Passions*, Paulist Press; Mahwah, NJ, 1993; p. 66

⁷⁶ Aquinas, *ST*, 2.22.1

⁷⁷ Aquinas, *ST*, 2.26.1

He also says that love is, indeed, a passion. Love is the first change a person or thing causes within us. Love presents us with someone who we see in a different context than before, and it becomes clear that he or she is someone good. We undergo a physiological and psychological change which allows us to view the person differently.⁷⁸

In question 27, Aquinas states that: ““Love implies a certain connaturalness or complacency of the lover for the thing beloved, and to everything, that thing is a good... good is the proper cause of love.”⁷⁹

When we love someone, they “complete us”. We are satisfied with the one we love, because he or she makes us feel whole. We already discussed that love requires rationality, or knowledge. Pertaining to the question of whether or not knowledge is a cause of love, he answers that “good is the cause of love, as being its object”.⁸⁰ The contemplation of spiritual beauty is the beginning of spiritual love, as bodily sight is the beginning of sensitive love. “Love demands some sort of apprehension of the good that is loved... Knowledge is the cause of love for the same reason as good is, which can be loved only if known.”⁸¹

Is likeness a cause of love? Aquinas believes that it is, but likeness between things is twofold. The first kind of likeness produces a love of friendship or well-being. The second kind of likeness brings about “love of concupiscence”, which is friendship found on usefulness or pleasure.⁸²

None of the passions would be possible without presupposing a love of some sort. “Every other passion of the soul implies movement towards something or rest in

⁷⁸ Aquinas, ST, 2.26.2

⁷⁹ Aquinas, ST, 2.27.1

⁸⁰ Aquinas, ST, 2.27.2

⁸¹ Aquinas, ST, 2.27.2

⁸² Aquinas, ST, 2.27.3

something.”⁸³ One good is the cause of another, and it may be the case that some other passion causes a particular love.

In his twenty-eighth question, Aquinas states that the union of a lover and his or her beloved is twofold. We already spoke of the love of friendship and the love of concupiscence. When we love someone, we interpret them as belonging to our well-being.⁸⁴

He also explains zeal, which arises from love’s intensity. An intense love wants to remove everything in its way, since love entails movement towards an object loved. Zeal differs according to love of friendship and love of concupiscence. In friendship, one is opposed to anything that conflicts with his or her friend’s good. In love of concupiscence, we oppose everything that may prevent us from obtaining and enjoying the person we love. Zeal often makes a quick transition to jealousy, which can be easily seen in jealous boyfriends and girlfriends. I have had friends who have needed to know his or her significant other’s whereabouts at every minute of the day. This simply isn’t healthy.⁸⁵

Aquinas poses the question “whether love is the cause of all that the lover does?” Every agent acts towards an end. The end is the good desired and loved by each person. Every agent, therefore, performs every action due to a love of some kind.⁸⁶

To summarize this thesis, I have demonstrated that love is the basis of all other emotions. It defines who we are and how we treat others. Love is mysterious and confusing, but its effects are mostly positive and reassuring. Since it is the most important emotion, it is naturally the most complicated. Exploring the many facets of love shows how complex we are, as human beings. God made us so we can love one another and love Him. Ultimately,

⁸³ Aquinas, ST, 2.27.4

⁸⁴ Aquinas, ST, 2.28.1

⁸⁵ Aquinas, ST, 2.28.4

⁸⁶ Aquinas, ST, 2.28.6

love drives us to find our way back to the God who created us. It also draws to other humans we may love. Falling in love is a crazy, hectic process, and staying in love stretches over a significant period of time. We have love of friendship, love of concupiscence, love for God, etc. It is far more complicated than I ever realized. It is a bit of an exaggeration to state that “All we need is love”, but if we have love, we are well on our way to a happy life which will satisfy ourselves and our God.

SOURCES

Aquinas, Thomas; Summa Theologicae

Freud, “On Narcissism”, Collected Papers of Sigmund Freud, vol. 4, International Psychoanalytic Press, 1924

Freud, Anna; Normality and Pathology in Childhood; International Universities Press, NY; 1965

Harak, Simon; Virtuous Passions, Paulist Press; Mahwah, NJ, 1993

Terris, M.; “Approaches to the Epidemiology of Health”, American Journal of Public Health; 65 (1973)

Turgenev, Ivan; Spring Torrents; Penguin Press, NY, 1980

Walsh, Anthony; The Science of Love; Prometheus Books, NY, 1991

Young, Michael; The Rise of the Meritocracy; Penguin Press; Middlesex, England, 1975